# Pertussis and Diphtheria Updates



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### **Outline**

- Diphtheria
  - Case definition change
  - Testing changes
- Pertussis
  - Case definition change
  - Following up with negative PCR tests

# Diphtheria

## **Updates to Case Definition**

- New case definition went into effect January 2019
- Previous case definition included only respiratory disease and did not distinguish between toxinproducing or non-toxin-producing
- New case definition includes all toxin-producing
   C. diphtheriae
  - Respiratory and non-respiratory
  - Excludes histopathologic diagnosis as confirmatory diagnostic method

### **New Case Definition**

- Confirmatory Laboratory Evidence
  - Isolation of C. diphtheriae from any site AND
  - Confirmation of toxin-production by Elek test or by another validated test capable of confirming toxinproduction
- Clinical Criteria
  - Upper respiratory tract illness with an adherent membrane of the nose, pharynx, tonsils, or larynx
     OR
  - Infection of a non-respiratory anatomical site (e.g., skin, wound, conjunctiva, ear, genital mucosa)

### **New Case Classification**

#### Confirmed

- An upper respiratory tract illness with an adherent membrane of the nose, pharynx, tonsils, or larynx and any of the following:
  - ◆ isolation of toxin-producing C. diphtheriae from the nose or throat OR
  - epidemiologic linkage to a laboratory-confirmed case of diphtheria

#### OR

- An infection at a non-respiratory anatomical site (e.g., skin, wound, conjunctiva, ear, genital mucosa) with
  - ◆ isolation of toxin-producing C. diphtheriae from that site

### **New Case Classification**

### Suspect

- In the absence of a more likely diagnosis, an upper respiratory tract illness with each of the following:
  - an adherent membrane of the nose, pharynx, tonsils, or larynx AND
  - absence of laboratory confirmation AND
  - lack of epidemiologic linkage to a laboratoryconfirmed case of diphtheria

#### OR

Histopathologic diagnosis

## **Diphtheria Testing**

- WSLH will no longer be performing diphtheria testing.
  - Difficult to keep staff proficient
  - Need to keep unique reagents
  - Time and resource intensive
- Testing will be done at CDC only.
  - Send samples to WSLH, then they will be forwarded to CDC.

### **Additional Resources**

- More information on case definition:
   <a href="https://wwwn.cdc.gov/nndss/conditions/diphth">https://wwwn.cdc.gov/nndss/conditions/diphth</a>
   <a href="eria/case-definition/2019/">eria/case-definition/2019/</a>
- MMWR:
   <a href="https://www.cdc.gov/mmwr/volumes/68/wr/mm">https://www.cdc.gov/mmwr/volumes/68/wr/mm</a>
   6812a2.htm
- Updated EpiNet:
  <a href="https://www.dhs.wisconsin.gov/publications/p0">https://www.dhs.wisconsin.gov/publications/p0</a>
  <a href="https://www.dhs.wisconsin.gov/publications/p0">1985.pdf</a>

## Pertussis

## **Updates to Case Definition**

- Positive PCR with any cough = confirmed
- Epi link, any cough and one symptom = probable
- Eliminate age-specific criteria

## **Clinical Criteria**

Cough illness lasting greater than 2 weeks with at least one of the following signs or symptoms:

- Paroxysms of coughing
- Whoop
- Post-tussive vomiting
- Apnea

# New Case Classification (January 2020)

#### Confirmed

Acute cough illness of any duration with

- ◆ Isolation of *B. pertussis* from a clinical specimen
   OR
- ◆ PCR positive for B. pertussis

# New Case Classification (January 2020)

#### **Probable**

 In the absence of a more likely diagnosis, illness meeting the clinical criteria

### OR

- olllness with cough of any duration, with
  - At least one sign or symptom

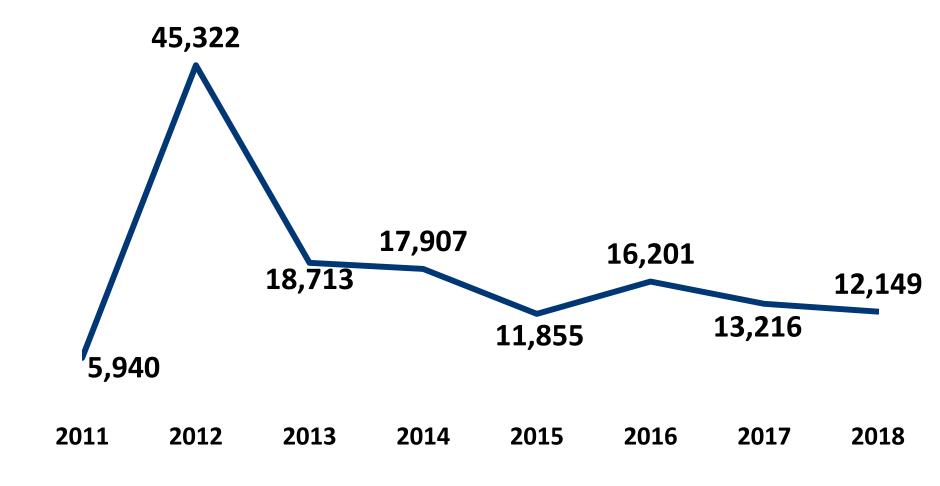
#### **AND**

Contact with a laboratory confirmed case (epi linked)

# **Background – Investigation** of Negative Results

- In 2004, health departments started receiving negative PCR results
  - During large outbreak
  - Needed to know who was tested
- Motivated study to evaluate utility of investigating negative results
- Since then, pertussis testing has increased
  - Respiratory panels
  - Not truly suspected

Figure 1. Number of negative pertussis PCR tests imported into the Wisconsin Electronic Disease Surveillance System (WEDSS), 2011–2018



# **Background – Investigation** of Negative Results

Over 10,000 negative pertussis PCR tests are imported into WEDSS every year.

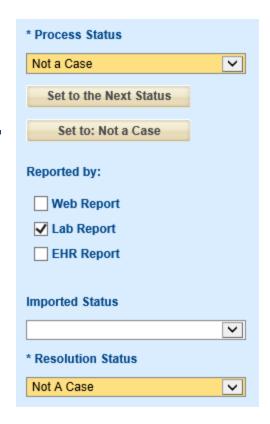
- In 2018, 4.4% of investigations into negative
   PCR tests resulted in a confirmed case.
- Most states do not follow up on negative PCR results.

## **Negative PCR tests**

- Burden of follow up
  - Time intensive (14-day cough requirement)
  - Resource intensive
  - Other pressing public health issues
- Local health departments will no longer be expected to follow up on negative PCR tests.

## **Negative PCR tests**

- Set to "Not a case"
- Only investigate if necessary (i.e. contact of a confirmed case)
- These cases will automatically be closed out after 3 months



# Following up for cough duration

- Duration of cough is only required if the patient does not have a positive PCR result or is not linked to another lab-confirmed case.
- Follow up is not expected for negative PCR tests, so following up for cough duration will not be necessary is most cases.

### **Maternal Immunization**

- Tdap is recommended during every pregnancy.
- In Wisconsin, approximately 3 out of every 4 women receive Tdap during pregnancy.
- Majority of pertussis cases in Wisconsin are among infants.

■ For infants aged <1 year ONLY: Mother's Tdap Vaccination History	
Mother's First Name	Mother's Last Name
Mother's Birthdate	
Did the mother ever receive Tdap BEFORE cough onset in infant	
○ Yes ○ No ○ Unknown	
Enter name and address of the organization where the mother received Tdap OR (if Tdap receipt is no/unknown) the organization where the mother received care during pregnancy	
Name of organization	Address of organization
If Tdap was received, answer the following questions:	
Date last Tdap dose received	
If exact date of Tdap receipt unknown, enter month and/or year of Tdap receipt:	
Month	Year(yyyy)
<u> </u>	
Tdap vaccine manufacturer	Tdap lot number
<u> </u>	
Was this Tdap dose received during the pregnancy with this child	
○ Yes ○ No ○ Unknown	
Source of Tdap vaccination history (check all that apply)	
Mother's report WIR Medical record	

# Questions?

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